

CLAIMS

What is claimed is:

- 1 1. A method of analyzing music, said method comprising the steps of:
 - 2 a) providing a digital database comprising a plurality of digital song files;
 - 3 b) selecting one of said song files for analysis;
 - 4 c) dividing said selected song file into a plurality of discrete parts;
 - 5 d) using Fast Fourier Transform techniques on each part of said selected song file to
 - 6 establish a plurality of coefficients, wherein said coefficients are representative of predetermined
 - 7 characteristics of said selected song;
 - 8 e) determining an average value for each characteristic from each said part of said
 - 9 selected song file;
 - 10 f) compiling a song vector comprising a sequential list of said average values for
 - 11 each said characteristic for said selected song file; and
 - 12 g) repeating steps b) through f) for each song in said database.
- 1 2. The method according to claim 1, wherein the characteristics are selected from the group
- 2 consisting of:
 - 3 brightness;
 - 4 bandwidth;
 - 5 tempo;
 - 6 volume;

7 rhythm;
8 low frequency;
9 noise; and
10 octave.

1 3. The method according to claim 1, wherein said digital database comprises a plurality of
2 compressed digital song files, said method further comprising the step of:

3 b1) decompressing said selected song file prior to dividing said selected song file into
4 a plurality of discrete parts.

1 4. The method according to claim 1, wherein said digital song files are formatted as linear
2 PCM audio data.

1 5. A method of determining a user's music preference, said method comprising the steps of:

2 a) providing a digital database comprising a plurality of digital song files;

3 b) mathematically analyzing each said digital song file to determine a numerical
4 value for a plurality of selected characteristics;

5 c) compiling a song vector comprising a sequential list of said numerical values for
6 each of said plurality of selected characteristic for each said song file;

7 d) dividing each said song file into portions of selected size and mathematically
8 analyzing each said portion to determine a numerical value for said plurality of selected
9 characteristics for each said portion;

10 e) selecting and storing a representative portion of each said song file wherein said
11 representative portion substantially mathematically matches said song file;
12 f) choosing two dissimilar representative portions and enabling said user to listen to
13 both representative portions;
14 g) permitting said user to indicate which of said two dissimilar representative
15 portions said user prefers; and
16 h) repeating steps f) and g), as necessary, to establish a taste vector for said user
17 comprising song characteristics that said user prefers.

1 6. The method according to claim 5, said mathematically analyzing steps further comprising
2 the step of:

3 using fast Fourier Transform techniques to establish a plurality of coefficients,
4 wherein said coefficients are representative of said characteristics of said song.

1 7. The method according to claim 5, further comprising the steps of:

2 i) comparing said user's taste vector to each said song vector by summing the
3 square of the difference between the numerical values of each characteristic in each said vector;
4 and

5 j) recommending to said user, a list of at least one song wherein the sum of the
6 square of the difference between the numerical value of each characteristic in each said vector is
7 below a predetermined threshold.

1 8. The method according to claim 7, further comprising the steps of:

2 k) enabling said user to listen to a song from said list of recommended songs and
3 permitting said user to select to listen to more songs similar to said selection;

4 l) comparing the song vector of said selected song to the song vector in the database
5 by summing the square of the difference between the numerical values of each characteristic in
6 each said vector; and

7 m) recommending to said user, at least one song wherein the sum of the square of the
8 difference between the numerical value of each characteristic in each said vector is below a
9 predetermined threshold.

1 9. A method of determining a user's music preference, said method comprising the steps of:

2 a) providing a digital database comprising a plurality of digital song files;

3 b) providing to said user a list of a plurality of songs selected from said database;

4 c) permitting said user to subjectively label each song in said list of a plurality of
5 songs according to said user's likes and dislikes;

6 d) analyzing said song's from said list of a plurality of songs wherein said song's
7 having been indicated as 'liked' by said user are separately analyzed from said song's having
8 been indicated as 'disliked' by said user;

9 e) determining a profile according to songs having been indicated as 'liked' by said
10 user.

1 10. The method according to claim 9, wherein said subjective labels are selected from the
2 group consisting of:

3 “I strongly like it”;

4 “I somewhat like it”;

5 “I neither like nor dislike it”;

6 “I dislike it”; and

7 “I strongly dislike it”.

1 11. The method according to claim 9, the step of analyzing said song’s from said list of a
2 plurality of songs further comprising the steps of:

3 d1) dividing each said song into a plurality of discrete parts;

4 d2) using Fast Fourier Transform techniques on each part of said song to establish a
5 plurality of coefficients, wherein said coefficients are representative of characteristics of said
6 selected song;

7 d3) determining an average value for each characteristic from each said part of said
8 song;

9 d4) compiling a song vector comprising a sequential list of said average values for
10 each said characteristic for said selected song file; and

11 d5) repeating steps d1) through d4) for each song in said list of a plurality of songs.

1 12. The method according to claim 9, the step of determining a profile further comprising the
2 steps of:

3 compiling a user taste vector comprising a sequential list of values for each
4 characteristic wherein each such characteristic is weighted according to said user's subjective
5 likes and dislikes.

1 13. The method according to claim 12, further comprising the steps of:

2 f) comparing said user's taste vector to each said song vector by summing the
3 square of the difference between the numerical values of each characteristic in each said vector;
4 and

5 g) recommending to said user, a list of at least one song wherein the sum of the
6 square of the difference between the numerical value of each characteristic in each said vector is
7 below a predetermined threshold.

1 14. The method according to claim 13, further comprising the steps of:

2 h) enabling said user to listen to a song from said list of recommended songs and
3 permitting said user to select to listen to more songs similar to said selection;

4 i) comparing the song vector of said selected song to the song vector in the database
5 by summing the square of the difference between the numerical values of each characteristic in
6 each said vector; and

7 j) recommending to said user, at least one song wherein the sum of the square of the
8 difference between the numerical value of each characteristic in each said vector is below a
9 predetermined threshold.

1 15. A method of comparing a new song to previously commercially successful songs, said
2 method comprising:

3 a) establishing a digital database comprising a plurality of digital song files wherein
4 said songs have been identified as commercially successful;

5 b) mathematically analyzing each said digital song file to determine a numerical
6 value for a plurality of selected characteristics;

7 c) compiling a song vector comprising a sequential list of said numerical values for
8 each of said plurality of selected characteristic for each said song file;

9 d) presenting said new song as a digital music file for comparison;

10 e) mathematically analyzing said new song file to determine a numerical value for
11 said plurality of selected characteristics;

12 f) compiling a new song vector comprising a sequential list of said numerical values
13 for each of said plurality of selected characteristic for said new song file;

14 g) establishing an affinity value for said new song as compared to each song vector
15 in the database by summing the square of the difference between the numerical values of each
16 characteristic in each said vector; and

17 j) determining the potential for commercial success if said affinity value is below a
18 predetermined threshold.

1 16. The method according to claim 15, said mathematically analyzing steps further
2 comprising the step of:
3 using fast Fourier Transform techniques to establish a plurality of coefficients,
4 wherein said coefficients are representative of said characteristics of said song.